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The Role of ORR in Economic Intelligence

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W A R N I N G

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CIA/RR Project 3-51

The Role of ORR in Economic Intelligence

I. Introduction -- What Is Our Problem?

The purpose of this paper is to set forth the nature and magnitude of the tasks which the Office of Research and Reports, Central Intelligence Agency, must perform to discharge its new mission as set forth in NSCID 15. This directive calls upon the Central Intelligence Agency to coordinate foreign economic intelligence relating to the national security throughout the US Government and to produce such economic intelligence as may be needed to supplement that which other agencies must produce in the discharge of their regular missions. This paper is concerned primarily with the producing rather than with the coordinating responsibilities of ORR.

During the first half of 1951, ORR was engaged in taking an inventory of its ignorance concerning the economy of the Soviet Bloc. The main purpose of this inventory was to establish a basis for planning a program of basic research to which ORR should address itself. Such a program must spring from a clear conception of why the US Government needs foreign economic intelligence, what foreign economic intelligence is, what role ORR should play in the total economic intelligence effort, and how the peculiar character of the Soviet economy and of our information about it influences the methods that we use. This introduction is devoted to some comments on these four topics.

A. Why does the solution of our national security problems depend in part upon adequate foreign economic intelligence?

Foreign economic intelligence serves at least five purposes in the design of policies to preserve our national security. These five purposes, which should be kept continuously in mind in planning our economic research program, are as follows:

1. To estimate the magnitude of possible present or future military or other threats to ourselves and our allies. A potential enemy can undertake successfully only those military operations which its economy is capable of sustaining. In the very short run, its strength may be measured in terms of the manpower which it can mobilize and the stocks of finished weapons of war and military supplies which it has on hand. Increasingly in modern times, however, military potential for anything but the briefest campaigns has come to depend upon the total economic resources available to a nation, including those necessary to support the civilian economy as well as those necessary to produce and operate the instruments of war.

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A clear picture of the magnitude of the present and possible future military or other threat is needed to guide us as to the over-all magnitude of the defense effort in which we must engage in order to preserve our freedoms in the event of war.

2. To estimate the character and location of possible present or future military or other threats. Decisions which the USSR or any other potential enemy make with regard to how they will allocate their resources limit what they can choose to do. If they elect to invest largely in military installations in the Far East, their potential for attack in Europe is correspondingly restricted. This is not a matter of judging their intentions but rather of seeing what limitations are placed on the courses of action open to them in the future by decisions which they make today about the allocation of their total resources.

A principal purpose of thus estimating the character of military or other threats with which we may possibly be faced is to guide us in designing our own defense effort so that it will protect us against real rather than imaginary dangers.

3. To assist us in estimating, within the range of the possible, the intentions of the USSR or any other potential enemy. The economic resources of the enemy and their present distribution permit him to select any of a range of possible or probable courses of action. Within this range certain economic events may furnish indications as to which alternatives the Soviets intend to pursue and where and when.

These indications of intentions may be very important in assisting us to adjust our defense preparations to meet the most probable dangers.

4. To help policy-makers decide what we can do to reduce possible or probable military or other threats by impairing an enemy's economic capabilities to carry them out. This includes measures that can be taken to weaken him in advance of hostilities and thus delay or prevent his decision to engage in them, as well as measures to weaken or destroy the economic basis of his military power should he choose to commit it in general war.

Economic intelligence can help in suggesting such measures, in estimating their effectiveness, and in forecasting the enemy's probable reaction to them.

5. To assist in estimating the probable development of the relative strengths of the East and the West over the next few years if global hostilities are avoided. A major purpose of these comparisons is to guide US policy-makers. The preceding four objectives are concerned with steps which the United States can take to defend itself against actions of a hostile power.

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Equally important is the design of that political policy which will have the best chance of achieving our objectives without hostilities. Essential to the planning of such a policy is the most accurate estimate possible of the relative economic strengths of both sides. There are equally grave dangers in a serious underestimate and in a serious overestimate of future Soviet economic strength. Either will produce policies more likely to bring on war than will an accurate estimate. The evaluation of Soviet strength implicit in various of the proposals for US policy now being advanced in this country varies widely from great economic weaknesses to very considerable economic power. A prime goal of authoritative economic intelligence is to provide the information that will narrow the "guess area."

All the studies that ORR produces should reflect an awareness of these objectives of economic intelligence.

B. What is economic intelligence?

Briefly, economic intelligence is intelligence relating to the basic productive resources of an area or political unit, the goals and objectives which those in control of the resources wish them to serve, and the ways in which and the effectiveness with which these resources are in fact allocated in the service of these various goals. There are a number of confusions as to the nature and limits of economic intelligence which call for clarification.

1. In the first place, there is sometimes a tendency to regard the whole of economic intelligence as encompassed in a mere inventory of available resources of labor, raw materials, and instruments of production. This inventory is a necessary part but only a part of the total economic problem. An inventory of resources by itself without an understanding of the goals which they are designed to serve or of the methods employed to allocate them in the service of those goals can tell us little about capabilities, vulnerabilities, or intentions. The Allied Powers have a total steel capacity which is more than four times as great as that of the Soviet Bloc, but such a comparison is highly misleading. For the United States to achieve its minimum goals, even in a time of crisis like the present, steel must be allocated to many uses which the Soviets regard as of low or negligible priority.

Furthermore, a modern economy is characterized by a highly complex web of interconnections among its various parts. The capacities of the economy may be limited less by the over-all availability of resources than by a failure to keep all the complex interrelations in balance. Thus tank production, for instance, may be limited not only by the availability of steel from which to manufacture the tanks but also by the steel available to make the rails and the freight cars necessary to carry steel from steel plants to tank plants, or, more remotely, by the steel required for the machinery necessary to mine the coal to operate the railroads. Thus economic intelligence must be as much concerned with the goals which resources are to serve, and the ways in which they are related to each other, as with the physical inventory of the resources themselves.

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2. Another problem relates to where economic intelligence leaves off and political, military, and scientific intelligence begin. Since the social organism is a whole and these ways of dividing it are somewhat arbitrary analytic inventions, precise lines between the segments are impossible to draw. In very rough terms, scientific intelligence follows the progress abroad of new scientific ideas through the research and development phases. When these techniques and methods begin to be employed broadly in production, they become the province of economic intelligence. Military intelligence is concerned with the character and capacities of the military establishments of foreign countries and with foreign targets for our own military efforts. Where the character of the military establishment depends upon rates of production or where the target of our military effort is the economy of the potential enemy, the lines between military and economic become blurred. The output of final military equipment and the physical targets on which our military forces must concentrate are clearly a prime concern of military intelligence. On the other hand, economic analysis is required to portray the complex nexus of economic support on which military production depends and to pursue the economic chain reactions which might result from the destruction of particular producing facilities.

The overlapping between political and economic intelligence is even greater. One of the best ways of studying the goals which a collectivized state wishes its economy to serve is to examine the institutional machinery that it establishes to guide economic processes. Thus certain of the institutions of government, although in a sense political phenomena, may have profound economic significance. On the other hand, economic conditions are of course an important determinant of the attitudes, loyalties, and composition of politically important groups. In these borderline areas, it is the purpose and object of investigation rather than the disciplines employed that determine whether intelligence is properly to be termed economic or political.

3. A final point of importance which the analyst must keep in mind is that economic intelligence is not always the same thing as economic information. Even the most basic economic intelligence should always be produced in relation to the needs of some intelligence consumer. The Central Intelligence Agency is charged with producing foreign economic intelligence relating to the national security, and the consumers of its product are those US Government officials charged with guarding the national security. A vast amount of information -- indeed, almost all information -- about foreign economies may be relevant to national security problems, but it is not economic intelligence until its relevance to those problems is made clear. It is the function of intelligence not to pursue knowledge for its own sake but rather to throw light on the probable consequences of present or future action. Though the intelligence analyst is not a policy-maker, he must constantly strive to keep in mind the relevance of information to policy problems, which alone can transform information into intelligence.

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C. What is the role of ORR in foreign economic intelligence?

Many US Government agencies are engaged in the production and collection of foreign economic intelligence. Therefore, we cannot determine our program of research on the basis of the foregoing statement of the purposes and nature of economic intelligence alone. We must also consider how our activities can be made to reinforce rather than to duplicate the great amount of work which others must carry on in the discharge of their own missions. Our recent survey of foreign economic intelligence throughout the US Government suggests a number of conclusions as to what the focus of our activities should be.

1. First, our survey revealed that one of the most urgent needs of the Government is for some central spot where all the economic intelligence collected and produced throughout the Government can be brought together and focused on national security issues. In recognition of this need the National Security Council has directed that the Central Intelligence Agency shall perform this coordinating function. Although this paper is directed at our production program, our plans for intelligence production within ORR must take full account of these coordinating responsibilities which go along with our substantive effort.

2. A second conclusion of our survey has been that the area most in need of substantial additional economic intelligence effort is the Soviet Bloc. This is partly because the Iron Curtain has made access to Soviet economic intelligence more difficult, partly because the Soviet economic potential is perhaps the most critical key to our national security, and partly because, for a variety of reasons, the economic potential of other areas crucial for our national security, such as Western Europe, has been much more extensively studied. The mature economies of Western Europe have long been an object of study by both academic and governmental economists. The European Recovery Program has stimulated intensive analysis of the characteristics, needs, and prospects of the Marshall Plan countries. Thus the economic research effort in man-hours directed at the USSR and its Satellites has been vastly less than that applied to Western Europe, although, because of the Iron Curtain, the effort required to produce comparable understanding is many times greater. For these reasons, we have concluded that the principal effort of ORR in intelligence production must be focused for the immediate future on the economic problems of the Soviet Bloc.*

3. We began this research effort with an inventory of our knowledge of the USSR itself. This, of course, is only a part of the problem. The economies of the European Satellites, whose analysis was our second task,

* The Soviet Bloc excludes Yugoslavia and Finland and includes the European Satellites (East Germany, East Austria, Poland, Czechoslovakia, Rumania, Hungary, Bulgaria, and Albania) and the Eastern Satellites (Communist China and Communist Korea).

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are likewise crucial to the Soviet economic potential. Recent events have highlighted the importance of China to our estimates of Soviet strength and intentions. A final source of Soviet strength, which must be another object of our efforts, is the resources that the USSR could draw upon either now or as a consequence of future developments outside the present boundaries of the Bloc.

4. A final weakness of the intelligence effort as revealed by our inventory is that the demands which have been placed on the limited number of analysts working on the Soviet economy have been so frequent and insistent that analysts have had little or no time to do the basic research necessary to supply answers in a confident and authoritative form. If our effort is to be useful at all, it must be on a sufficient scale and of sufficient depth to provide a much firmer factual foundation for the estimating process than economic intelligence has been able to produce in the past.

D. Peculiarities of economic intelligence concerning the Soviet Bloc.

There are a number of special characteristics of the Soviet economic intelligence problem which shape in important ways the methods that can be used to study it. These are not, however, all characteristics which make the problem more difficult than that of other areas. We may consider first some of the things about the Soviet economy which simplify our problem and then look at some of the factors which make it difficult.

1. The fact that the Soviet economy is centrally planned to achieve the goals of a small group of men acting collectively facilitates analysis enormously. In the free economy of the United States the tastes and desires of 150 million different unpredictable people all have an influence on what in fact occurs. The behavior of major sectors of the economy is greatly affected by the individual plans of countless consumers, each with a different and somewhat unpredictable quantitative weight. In the USSR there is one set of plans which dominates all others. Thus it is only by inadvertence that anything can occur which, from the point of view of the master plan, is irrelevant or unimportant. This makes the second job of economic intelligence described above -- namely, the elucidation of the goals and objectives which those in control of resources wish them to serve -- a great deal easier. Almost anything that happens can give us some clue.

2. A related point, true to some extent of every economy but especially true of the Soviet, is that everything depends on everything else. The interconnectedness of the economy and its subservience to the master plan mean that there are many different ways in which an economic fact can be ascertained. Steel production can be estimated directly from evidence as to the location and capacity of steel mills or indirectly from evidence of the manpower employed and of the iron ore or coal or alloy metals or other inputs available, from the total output of all the products made

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with steel, or from the capacities of transportation facilities serving the steel industry. The lack of direct evidence on some of the things that we most want to know, as revealed in the results of our inventory of ignorance, emphasizes the very great importance of giving priority to the interrelations of the parts of the economy. Thus the third task of economic intelligence, to explain all the complex ways in which resources are in fact allocated to various uses, is peculiarly essential to building a consistent picture of the Soviet economy.

3. A third fact that shapes our methods is that technology and the laws of nature are no respecters of iron curtains. The Soviets do many things differently from the way in which we do them, but in many other things they have no choice but to follow the only industrial technique that exists. Thus the electrolytic process which produces sodium hydroxide and chlorine inevitably produces them in the same ratio in the USSR as in the United States. We can learn many of the technical limitations on what they are able to do from a study of US industrial practices. But this must be done with care, since we know that in some cases the Soviets appear to be incapable of applying our techniques even where they know about them, whereas in other cases they have devised superior methods. Nevertheless, with appropriate caution, useful first approximations can be reached by the comparative method.

One implication of this for research plans is that there must be present in our work a much heavier dose of technical and engineering thinking than is customary in economic studies.

4. A characteristic which has advantages and disadvantages is that prices, markets, and money flows, the stock in trade of much economic analysis, have limited meaning in the USSR. We are spared the uncertainties of the capitalist business cycle, and monetary dislocations are of little significance. On the other hand, we are largely denied the benefits of money as a common measure of otherwise incommensurable activities. Most of our thinking must be not in terms of rubles but of tons and bushels and bales, of numbers of machines of innumerable different kinds, of car-miles, kilowatts per hour, and the like. To add all these things up to an index of capabilities, we must concoct our own common measuring rod, a task of no small complexity.

5. On the negative side is the obvious fact that information currently coming out of the Soviet Bloc is very limited indeed. This does not mean, however, as is sometimes concluded, that our knowledge is inevitably correspondingly limited. Radical economic changes do not occur overnight even in the USSR, and information on earlier periods is a good deal more abundant. Piecing this together with what we are getting now, exercising some ingenuity in making inferences from the know about the unknown (through the interrelations of the economy), and directing the

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collection of crucial missing pieces of information through the channels available to us, it is possible to put together a surprisingly reliable picture. What the scarcity of current information means is not that we are condemned to ignorance about the Soviet economy but rather that to find out what we need to know takes a great many more hours of painstaking research, of imaginative interpretation, and of fitting and adjusting than would be necessary in the study of an open economy. The documentation of this conclusion is to be found in the estimates of research time required which were compiled by the various divisions during the course of the inventory.

6. A final characteristic of the Soviet problem is that because of the costs and difficulties of collecting information, much more time and thought must be devoted to determining what pieces of additional information would be most revealing if we could secure them. This point should not be overemphasized. As the inventory discloses, the information required to give the answers that we need about a good many subjects is believed to be largely available in Washington. In those cases, what is needed is principally much more intensive mining of a rather low-grade ore. In other cases, however, field collection appears to be the only way of filling in certain critical gaps. In studying an open economy one would normally ask for much more information than one expected to use and then sort out the useful parts when it came. When the cost of information in money and lives is high, however, much more careful consideration must be given to which pieces of information are the vital ones. One of the principal responsibilities of ORR is to give this kind of guidance to the information collecting agencies.

The considerations set forth in this introduction do not determine the details of our research program or of our method of tackling it, but they do provide a framework of ideas within which the research program may be carried forward. The next task is to spell out method and content somewhat more precisely.

II. General Methods -- How Shall We Go about It?

A. The dilemma of the clamorous customer versus the basic study.

The central question of how we should allocate our time has already been referred to. The problems to whose solution we are asked to contribute are very urgent. Events will not wait for the orderly, patient, exhaustive research which alone can give satisfactory answers to these problems. If we were to devote ourselves exclusively to amassing all the facts we need, we would have to tell harried policy-makers that we would be glad to advise them -- beginning in about 2 years. We neither should nor can stay in an ivory tower that long. Even if it were possible to devote ourselves exclusively to exhaustive and encyclopedic studies for the next 24 months, it is highly likely that at the end of that period many of the problems

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that we would be asked to help with would have changed so that our results would no longer be particularly applicable.

On the other hand, if we succumb completely to the very real pressure upon us to answer all current requests for prompt information, we will never have any information better than the slim fragments that we can now supply. Thus our dilemma is, in a sense, whether to be encyclopedic and irrelevant or operational and incompetent.

Clearly the only tolerable solution is a compromise between these two extremes. We must try to answer the most important of the problems put to us from day to day as quickly and as competently as possible. But we must reserve a major part of our energies for improving the foundation of knowledge from which better quick answers can be given.

The necessity for this compromise has two further implications. The first is that it is possible to pursue this twofold objective only if we have a certain minimum of research resources substantially larger than that which the US Government has allocated to these problems in the past. This minimum we are on the way to assembling.

The other implication of our compromise is that since we cannot hope to have enough resources fully to exploit all the available information about the USSR, we must be very sure that we use our scarce research resources to fill in those areas of our ignorance which most seriously limit our estimating ability. We must concentrate our scarce manpower on finding out those things that the US Government needs to know most. The identification of these priority areas is one of the most puzzling problems facing intelligence.

B. How do we determine basic research priorities?

1. The most seductive answer to this question is contained in what we may call the "bottleneck fallacy." Since economic warfare, cold or hot, was first thought of, economists have sought for the bottleneck, the single critical item, the key facility without which the enemy's military economy would collapse. The history of the search for such bottlenecks is a record of failure, confirming the economist's faith that, given a little time, resources are highly substitutable for one another. This does not mean that economic warfare is bound to be ineffective. On the contrary, the very fact that resources are interchangeable means that to deny an enemy any resource is to weaken directly or indirectly his military potential. This is particularly true in an economy which, like the Soviet, has for years been directed toward a single set of goals. Any economic activity recognized by the Kremlin as not essential to these goals would have been abandoned long since. Thus wherever we make an economic attack upon the USSR, it is likely to hurt. But it is a delusion to expect that a limited attack upon a small segment of the Soviet economy will cripple Soviet strength. It is not the capacity of a particular facility or the availability of a particular commodity which ultimately limits the capabilities of the Soviets so much as their total resources and their ability to organize them effectively.

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This does not mean that all things are equally important. The selection of the more critical commodities and industries is one way of cutting the problem down to size. But when one has done all the pruning possible, the number of critical sectors of the economy remains too great to tackle them all exhaustively at once.

2. A second method of determining priorities for research is to see what basic research would be most relevant to the problems to which we are being asked to give current answers now. The dangers in this problem-approach to priorities are obvious. It leads one always to concentrate one's research on yesterday's rather than on tomorrow's problems. Basic research, by definition, takes time. The problems which may be urgent when the basic research that we start today is finished cannot be clearly foreseen and are almost certain to be different from those which are plaguing us now.

Furthermore, any attempt to list even the most urgent of the problems facing us at the moment reveals how many there are and how much of the total world economic picture is relevant to their solution. As part of our study of foreign economic intelligence for the National Security Council, the Central Intelligence Agency attempted to outline the requirements for such intelligence in terms of current problems. A very incomplete sample yielded a list of 42 top priority problems, some of them as broad as the total military potential of the USSR.*

Again, we cannot wholly discard this criterion. We must try to foresee tomorrow's problems and guide our research accordingly. There are some aspects of the Soviet economy which we can take the risk of neglecting. But we must do a broad enough job to hedge ourselves somewhat against the errors in our own forecasting.

3. A third possibility is to take some aspect of the study of each commodity and concentrate on that aspect alone for all commodities across the board. Thus one could take some section of the Outline for a Basic Commodity Study used in the preparation of the inventory and fill in that section for every item first, leaving other sections until later. One could devote the entire energies of ORR to the study of requirements, for example, or to techniques and methods of production, or to the organization and plans for each industry, or to levels of output, or to some other aspect.

This principle of selection is almost certain to be unsatisfactory by itself, since the answers to most of the questions which policy-makers are going to ask involve putting together all of the parts of a basic study to get at the conclusion. Thus an estimate of capabilities requires an estimate of

* "Foreign Economic Intelligence Requirements Relating to the National Security," Appendix B to Memorandum for the Intelligence Advisory Committee from the Director of Central Intelligence, dated 31 May 1951.

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the balance between supplies and requirements to achieve whatever may be the goals and plans of the Soviet rulers. An estimate of vulnerabilities involves a knowledge of the availability of materials at present production rates and also an estimate of how goals and plans would be affected if that availability were to be cut by our action to a point far below requirements. If the design of a basic study is properly drawn, information about all the parts of that study is required to arrive at conclusions, and no single part can be left out entirely if satisfactory conclusions are to be reached.

4. The investigation of each of these methods of determining priorities on our research time leads us back to the unacceptable conclusion with which we started -- namely, that the encyclopedic and exhaustive analysis of most of the parts of the whole economy is the only way in which we can arrive at sound and authoritative answers to the questions that are being asked. But we have already determined that we do not have the time or the resources to carry through this number of systematic basic studies from beginning to end. How, then, can we resolve this puzzling dilemma?

The answer is suggested by looking at the present state of our knowledge. What we have just proved is that we need to know something about most aspects of most sectors of the Soviet economy to make a sensible estimate of capabilities, vulnerabilities, or intentions. But we have not proved that we must know everything about every aspect. What we already know permits us to set certain outer limits to the area of the possible. We know the Soviet Union is at least capable of certain minimum actions, and we can set certain ceilings on what they are at most capable of. Our problem is to bring the "at least" and the "at most" closer and closer together. This calls for a research program guided by what we may call the method of successive approximations.

C. The Method of Successive Approximations.

1. The first step in the Method of Successive Approximations is to lay out in general terms the specifications of what you would like to know. What is the list of all the significant industries, commodities, and services which should be studied, and what are the principal problems about them which we would like to solve? This was the first assignment in our inventory and resulted in the outlines produced as a guide to it.

2. The second step is to see how much of the outline you can fill in and with what degree of precision. This will reveal that our information about some aspects of each of our problems is better than our information about other aspects. It may not be very good. The best information that we possess may have a very wide margin of error, but other parts of our outline will be still weaker. Our inventory was designed to bring us through this second state -- to tell us what we know and what we do not know about each of our major problems with respect to the USSR. It has revealed what it was intended to show -- namely, that our ignorance of certain important matters is much greater than our ignorance of others.

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3. The third stage of our Method of Successive Approximations is to concentrate our most earnest efforts for a brief period on the important parts of our problem which we know least about. This does not mean that we seek authoritative or final answers in these areas of ignorance but merely that we focus on them until our knowledge is brought up to a level equal to or somewhat better than our knowledge of the other parts of the picture.

4. When we have been working in this manner on weak spots for a period of 2 or 3 or 4 months, we must stand off and take another look at where we are then in relation to the total outline. The weak spots may still be weaker than anything else, or we may have gone far enough with them so that, although we still do not know much about them, they will be in better shape than what formerly was our best evidence. If our second over-all look reveals this to be the case, we must tackle whatever other sectors of our problem are now the weakest, not again with the notion that we are going to find out everything about them, but only that we are going to work on them until our ignorance of some other matter requires more pressing attention. In this business, knowing a little about a great many things is likely to be more helpful than knowing everything about a very few things and nothing about others. Each substantial drive to cover an area of ignorance must be intensive enough and substantial enough to permit us to make real progress toward solutions and not merely to hold our own. On the other hand, it must not be pursued with such perfectionist zeal that we neglect other areas in which our ignorance may be only slightly less serious.

5. In summary, the Method of Successive Approximations involves a repeated cycle of review and examination, planning, and several months' production followed by another review in the light both of progress and of changes in the character of the problems to be solved. We have devoted a good deal of time recently to the review and planning phases and are now launched upon a production program. Sometime in the fall, another cycle of review and reexamination of plans will be called for.

D. Problems in applying the method.

In attempting to apply the Method of Successive Approximations, certain common problems and difficulties arise which are worth a brief comment.

1. A particularly bothersome problem is that the things which we know least about, and thus the things which it is most important to study, are likely to be the things on which we have least information. In general, we know more about rates of production of important commodities and products in the Soviet Union than we do about patterns of distribution of those products. This is partly because much more evidence is available on rates of production. The temptation is to study the material that we have and draw such generalizations from it as it seems to contain.

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In terms of getting answers to our vital problems, however, we cannot permit the available evidence to dictate the nature of our inquiry too completely. Several weeks spent searching for every possible way to button down an illusive fact by ingenious reasoning from other related facts, by working out limits on what its magnitude could possibly be from what we know about other parts of the economy, or by laying on collection requirements may be worth many times the same amount of time devoted to extracting, setting down, and presenting all the facts that may happen to be in a given body of documents.

Both methods must be employed. Until we have systematically examined the available material, we do not know what can be got out of it. But the material available was not designed to answer our questions, and it must be made to be the servant of our investigation and not its master.

2. An irritating feature of the Method of Successive Approximations is that it may well involve us in going over the same material several times in search of the answers to a series of different questions. This repetition is unfortunate and can be avoided to some extent by investing some time in indexing and abstracting, either by ORR analysts themselves or by an expanded staff in OCD. If, however, we examine exhaustively all the material available to us for every implication that it contains the first time we study it, we will not complete our investigation for many, many months. It is unfortunate that research by the Method of Successive Approximations involves some waste and some repetition, but it is better than being able to produce no answers until 1954.

3. The natural instinct of the researcher who has plenty of time is to follow the logical process of trying to build up a picture of a whole sector of the economy by first getting an idea of each of its smaller component parts. Thus the logical way to estimate the value of resources used in chemical production is to find out what resources are used in the production of each of the many different kinds of chemicals. Again this logically involves breaking each particular chemical into the quantities produced in each specific plant. This suggests that the first step in answering the over-all question is to try to identify all the physical producing facilities and their capacities and rates of operation. In many cases, however, a first approximation to the aggregate figure can be achieved by short cuts which avoid the necessity of knowing what in detail it is made up of.

Thus one can start, for example, with total resources engaged in chemical production in the United States, or in the war economy of Nazi Germany, as a proportion of total resources. One can then consider known respects in which the proportion in the USSR must deviate from these examples. Soap is rare in the USSR, and every household does not have its DDT spray. Such estimates of the whole before you know the parts usually have wide margins of error, but when current problems are pressing, they are frequently better than nothing at all.

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4. Finally, for this method to be effective, it should ideally be applied not simply to ORR's schedule of research production but to that of the US Government as a whole. Our delineation of areas of ignorance should be on a Government-wide basis, and our production to remedy these weaknesses should be planned in collaboration with other agencies so that we do not all concentrate on the same gaps at once. As the coordinating part of our activities progresses, it should be closely integrated with our production so that the Government as a whole may approach more rapidly an adequate understanding of the Soviet economy.

III. ORR's Production Program.

A. Ways of describing our ignorance.

Our inventory was designed to reveal our major areas of ignorance as a basis for planning our future research production program. In trying to generalize on what we have learned from this study, we face the problem that just as there are many ways of classifying knowledge, so there are many ways in which we can classify areas of ignorance. We can do this in terms of commodities, industries, or services about which our general economic knowledge is particularly weak; or we can consider those aspects of our knowledge which are weaker for all commodities than other aspects, such as, for example, production, distribution, requirements, stocks, techniques, etc.; or we can consider which of the basic purposes of economic intelligence we are least well-equipped to serve, such as the study of capabilities, vulnerabilities, or intentions; or we can look at our weakness in terms of the three fundamental aspects of the economic problem described at the beginning of this paper — namely, the estimating of the productive resources of the economy, the understanding of the goals and objectives which those in control of the resources wish them to serve, and the ways in which the resources are in fact allocated in the service of these goals.

An attempt is made in this section to suggest what seem to be some of the most serious weaknesses in the present knowledge of ORR as revealed by our inventory. Each of these weaknesses is drawn from a different way of looking at our problem. Thus they are not commensurable with each other, in many cases they overlap, and hence they do not add up to any single priority principle for determining what we should do next. It is inherent in our problem that we require studies based upon a wide variety of different ways of slicing that problem into its pieces. Indeed, we must be constantly alert for still other ways of subdividing the issues to be tackled which may throw more light on certain of our questions than any of the ways we have thought of so far.

It should also be kept in mind in what follows that the generalizations made in this section apply in different degrees to different branches of ORR. There are certain weaknesses that appear to be generally prevalent in much of

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our work, but their relative importance varies widely from branch to branch.

Finally, in planning our work in such a way as to limit the areas of ignorance described below we must make full allowance for the research and production plans of other agencies. Since what follows has not been discussed outside the Central Intelligence Agency, our plans will presumably be modified somewhat as a result of discussions in the Economic Intelligence Committee as to the plans for intelligence production throughout the Government.

B. The need for more study of goals, plans, and organization.

In most sectors of the economy we appear to know a good deal more about the resources and facilities of the Soviet Union than we do about what the Soviets are trying to do with those resources and facilities. Broadly speaking, we believe that they are trying to devote them to the increase of their military strength, but we cannot go far beyond this master generalization into what products and uses are regarded as most important, what will be given priority in the event of a shortfall, and why, and what goals and objectives will shape the future development of their economic program.

We have, of course, a separate branch whose function it is to study economic organizations and programs as such, but the effort needed in this field is much broader than a single branch can make and much more intimately tied in with the problems of each of the other branches than might at first appear.

Superficially the problem of how we go about the study of goals and plans is a difficult one. The USSR has published 5-year plans in the past, but there is considerable doubt as to whether it will continue to do this in the future. In any case, these plans have contained only the broadest sort of production targets, with no analysis of the reasons for them or of their relative priority. In this case, as in many others, however, we can learn much more by indirection and inference than at first appears.

In the first place, the plans themselves have many implications which need further study. Goals for a series of interconnected commodities such as coal, steel, railroad equipment, etc., can be studied to see how the pieces fit together and what they imply as to the desired pattern of use of resources.

In the second place, we can learn a great deal about the plans and goals of the Soviets from the structure of the organization set up to achieve them. The ministries established, the breakdown of functions within those ministries, the distribution of authority between Moscow and regional

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headquarters, the kinds of people appointed to handle the various jobs thus defined, can all give us much information about what the USSR is trying to do.

Finally, as already pointed out, we are helped in this investigation by the fact that everything that happens in the USSR is intended to contribute to the central design. The study of all kinds of events can thus give us hints which can be pieced together into a picture of what the authorities are trying to do with available resources. Information on diversions of material from one use to another, priorities on transportation, marked trends in the production of particular commodities, exhortations to workers in particular areas, and literally thousands of other things of which news reaches us give us clues in putting together the pattern of Soviet economic plans.

The pattern will not emerge automatically, however, from a passive examination of the material. We must seek the answers systematically by initiating special projects on Soviet organization, on Soviet plans, and on Soviet goals as revealed in events. This is one field in which many of our branches need to concentrate a larger part of their efforts for the time being than they have done in the past.

C. The need for more systematic study of Soviet military intentions as revealed in economic events.

A related but different weakness is the lack of adequate attention in the past to economic indicators of the military intentions of the USSR. We have been talking above of the general economic goals of the Politburo and the elucidation of what the Soviets are trying to do with their total resources. We can look at the same problem from the other end, examine all of the alternative courses of military action open to them, and then try to see what observable economic events would take place differently today if they were planning one course of action rather than another in the future. The evidence to be examined in answering this question will, in most cases, be the same evidence that we have been examining to estimate capabilities. What we need is to establish some machinery for periodically focusing our minds on the evidence looked at from this point of view. A continuing office project designed to do this is being planned.

D. The need for more study of the relations among industries.

Partly because ORR is organized largely by industries, commodities, and services, there is a tendency for us to concentrate too heavily on techniques, facilities, and rates of output in the separate sectors of the economy and to pay too little attention to the way in which they are related to each other. This shows up in our inventory in the great relative weakness of those parts of the papers which call for information on the demands of one industry for the products of other industries or sectors (input requirements)

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and those sections devoted to the pattern of distribution of an industry's output among other industries or final consumers.

This weakness is particularly serious because it is not unique to ORR but is common throughout the intelligence community. Other agencies likewise are focusing their attention on individual facilities and their productive capacity. As suggested earlier, however, the capabilities and especially the vulnerabilities of the Soviet economy probably depend much more on the efficiency of the connections between its parts than on the resources available in any one sector.

Like all of the judgments of this section, this is an estimate of relative and not of absolute weakness. Some notion of how much of a commodity is produced is clearly a prerequisite to an estimate of where that production goes, though in actual analysis it is frequently possible to reverse the logic and estimate rates of production from what we know must be the distribution. Thus it may be very useful to try to estimate the consumption of electric power in the chemicals industry before we have firm evidence on either the total production of electric power, plant by plant, or the total production of each of the many special kinds of chemicals that require electric power in their manufacture.

There are many ways of getting at an estimate of this kind indirectly. One can take parallel experience in a number of other countries, noting the correlation of this figure with other quantities that can be observed in the USSR. One may have information about the general geographic location of production and the character of the power grid serving these areas. Margins of error in this kind of calculation are usually very high, but it may be possible to set limits on orders of magnitude which bring our ignorance about these factors below the level of our ignorance on other matters.

There are various ways in which our efforts on interindustry relations can be intensified. In the first place, in basic studies on particular industries, commodities, and services, more attention can be paid to estimating input requirements and the distribution of output. This, however, is not likely to be enough. The evidence on these interindustry problems, from their very nature, can best be assembled by examining both ends of the interindustry pipe. This means that the aluminum consumption of the aircraft industry is a problem for both the Aircraft Branch and the Nonferrous Metals Branch. To insure that a spotlight is turned on some of the more important of these interindustry problems, it is proposed that a number of joint projects be set up to make estimates of this kind.

As the number of sectors of the economy involved in such an interindustry study expands, it becomes the concern of most of ORR. We have initiated one project, the study of the pattern of utilization of energy resources in the USSR, which will require contributions from virtually every branch.

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E. The need for more study of the economic requirements of military operations.

Our inventory reveals that we are almost totally ignorant as to the burden placed upon the economy by specific military operations of various kinds. In a sense, this is a special instance of the general point just discussed. Military operations can be conceived of as a consuming sector of the economy. The relations between military consumption and the industries and services which supply it can be regarded as one of the most important cases of interindustry relations. Here what we need to know goes beyond the actual distribution of products and services to military use at the present time and encompasses a study of what that distribution would be under various alternative assumptions as to the nature of possible future military operations. This clearly is a kind of study in which the military intelligence services must play a major role.

We should look to A-2, G-2, and ONI for estimates of the volume of military end items required for and consumed in probable operations of various kinds. The burden which these rates of consumption of men, munitions, weapons, and supplies place upon the producing facilities turning out the final military product is a problem which the military intelligence services and ourselves will have to work out jointly.

As we move farther up the chain of production, going from tanks to parts to steel, from planes to instruments to vacuum tubes, from bombs to TNT to ammonia, we move into areas where the responsibility rests squarely upon us. Thus in the field of interindustry relations generally, special importance attaches to the relations between industries which directly or indirectly serve a military effort. Our role in the analysis of weapons and ammunition should focus especially heavily on what it takes to make these things and thus on the implication for the rest of the economy of whatever levels of military output the defense agencies estimate are needed for various types of military operations.

F. The need for more study of particular industries, commodities, and services.

This is discussed in detail in the reports of the separate divisions. Broadly speaking, as might be supposed, our principal gaps in CRR are in those areas where we have had no analysts available to work on the problem. Several are urgent and outstanding. For example, we have no satisfactory analyses in the Central Intelligence Agency of the general field of construction of all kinds in the USSR. This is important for many reasons. Construction absorbs a very large volume of resources, places a heavy burden on the transportation system, and is an important requirement for military installations of all kinds as well as a prerequisite for industrial expansion.

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Another outstanding weakness is in the communications field. The technical side of this problem is well-covered by OSI and other agencies, but the relations between communications and all other industries are almost untouched. This includes an analysis of the requirements laid upon the communications network of the Soviet Bloc by the needs of the Bloc's economic system, as well as of the volume and character of Soviet resources required to sustain and expand that network.

Another broad field of serious relative weakness is the analysis of the industries producing military equipment, including ships, aircraft, tanks, ordnance, and ammunition. As already mentioned, some aspects of these industries are covered by the military intelligence services. But the burdens that they place on the rest of the economy, and, on the other side, the limitations which the rest of the economy imposes on capabilities in these fields, their vulnerabilities to the interruption of the supplies that they need, and the indications of intentions that we can derive from their peculiar requirements are all matters on which we must put more emphasis.

G. The need for more study of technical aspects of Soviet industry.

Many of our estimates of Soviet capabilities and vulnerabilities are based upon the assumption that the Soviets are using methods similar to ours. In computing input requirements for a given output, we must frequently fall back on US experience. Yet we know that this is in many instances grossly misleading. For example, the US coal miner produces on the average about four times as much coal per day as his European counterpart. In other respects, Soviet techniques may well be ahead of ours. Unless we can set limits to the possible range of technical methods that the Soviets may be using, our estimates will be subject to wide margins of error.

This information is not easy to get. We know or can learn a good deal about prewar methods, both from the literature and from the people who participated in the design of their industrial economy. We can, of course, find out what went to the USSR under Lend-Lease. For more recent information we must depend on the visual observations of defectors, prisoners of war, occasional travelers, and the like; on items in the Soviet press, radio, and technical publications; on inferences from what we can learn about inputs for given outputs, etc. We must have more studies on Soviet industrial techniques.

H. The need for more study of the interdependence of areas.

In a broad sense this can be described as the need for more attention to trade. We have examined in our recent work on the European Satellites some of the ways in which they are dependent upon the USSR and the USSR in turn is dependent upon them. A major gap revealed in this project, however, was the absence of even approximate information on the composition and volume of intra-Bloc trade. Studies on China have revealed a similar weakness in our

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knowledge of what China is getting from and giving to the USSR.

Of equal importance is the development of more information on the interdependence of major areas within the USSR itself. To what extent does the Soviet Far East depend for its economic potential upon its somewhat tenuous connections with the rest of the Soviet Union? How self-sufficient is the Urals industrial complex? What are the economic relations between the Caucasus and other Soviet areas? These questions are important to the analysis of the capabilities of transport, power, and communication nets; of vulnerabilities of many kinds; and, to some extent, of intentions.

I. The need for more study of the index number problem.

Almost any investigation of a major sector of the Soviet economy leads one back to the problem of how to add up incommensurables. Suppose we can estimate the output of various kinds of machine tools. How are we to measure changes in the total economic effort that goes into machine tool production as the composition of output changes? It is common knowledge that the prices put upon goods traded by the USSR with the Satellites are sharply distorted for political reasons. What then is the over-all volume of trade between the USSR and Hungary in each direction? How does the proportion of Soviet resources being devoted to expansion of productive facilities compare with that, say, in Western Europe? One is stopped on the problem of how to measure resources devoted to such expansion.

This is a problem on which a good deal of work has been done outside the Government. Perhaps more can be put in progress by external research contracts. But a good deal of effort is needed to bring the results into such a form that they can be used to answer pressing problems now baffling Government analysts.

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